What is claimed is:

Claim 1. A semiconductor device characterized in that an interface layer, a diffusion suppressing layer and a high dielectric constant insulating film are sequentially formed in this order on one surface of a silicon substrate.

Claim 2. A semiconductor device as cliamed 1, therein the interface layer have an equivalently converted SiO_2 thickness of 1.0 nm or smaller.

Claim 3. A semiconductor device as cliamed 1 or 2, therein the constitutional element of the high dielectric constant insulating film is made the same as part of the constitutional elements of the interface layer.

Claim 4. A method for manufacturing a semiconductor device characterized by comprising: forming an initial layer on one surface of a silicon substrate; forming a diffusion suppressing layer on the surface of the initial layer; performing heat treatment to allow the initial layer to become an interface layer mutually diffused with the silicon substrate; and forming a high dielectric constant insulating film on the surface of the diffusion suppressing layer.

Claim 5. A method for manufacturing a semiconductor device characterized by comprising: forming an initial layer on one surface of a silicon substrate; forming a diffusion suppressing layer on the surface of the initial layer; forming a high dielectric constant insulating film on the surface of the diffusion suppressing layer; and performing heat treatment to allow the initial layer to become an interface layer mutually diffused with the silicon substrate.